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Dependence and Risk: Transforming the Structure of Social Exchange*

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Two forms of relations—dependence and interdependence—are the basis for two distinct types of social structure: 1) exchange relations and networks, and 2) groups. The structure of mutual dependence that underlies all social exchange relations is riskier than the structure of interdependence that underlies cooperation in groups. I argue that the risk of dependence is reduced, to varying degrees, by the way in which transactions are structured and organized over time. I discuss: 1) the form of transactions (negotiated or reciprocal) and 2) the relations between sequential transactions (independent or serially dependent). Both negotiated transactions and serially dependent transactions reduce risk, in different ways and to varying degrees. The joint decision process of negotiated transactions changes the structure of exchange directly, by introducing elements of interdependence. Serially dependent transactions provide actors with the opportunity to change the structure, through the use of contingent action, and allow for the development of emergent aspects of exchange. Implications for research are discussed.

Richard Emerson's (1972a, 1972b) path-breaking work initiated the development of a truly structural theory of social exchange: a theory that places primary emphasis on the form of social relations among actors rather than on characteristics of actors or the content of interaction (see Molm and Cook forthcoming). The key to this development was Emerson's (1972b) concept of exchange networks. Networks bridged the gap between dyadic interaction and more macro forms of social structure, enabling the theory to move beyond its original dyadic limitations. The concept also allowed the theory to link up with other sociological analyses of networks and to make use of graph-theoretic concepts of networks.

Quite rightly, then, attention has focused on networks as the building blocks of a structural theory of social exchange. Yet the emphasis on networks and on efforts to develop network-level measures of power, centrality, and so forth have led to a neglect of other structural concepts, which in many ways are more central to social exchange theory.

My objective in this paper is to discuss some of these neglected implications of the

structure of exchange. I begin by distinguishing between relations of *dependence* and *interdependence*, which form the basis for *networks* and *groups* as distinct forms of social organization. A structure of mutual dependence underlies all exchange relations, whether dyadic or embedded in larger networks. This structure poses a social dilemma for actors that makes exchange inherently risky. How this dilemma is resolved, and how social exchange relations form and endure in the face of risk, is one of the oldest themes in the exchange literature—and one of the most neglected issues in contemporary research.

I argue that the risk of exchange is reduced, in different ways and to varying degrees, by the way in which exchange transactions are structured and organized over time. Some modes of exchange transform exchange relations and networks into structures that are more similar to those of groups, thus reducing risk. Current research programs study exchange transactions that differ on these dimensions; consequently the structures of exchange relations that researchers study also vary. As I discuss, these differences in exchange settings have important implications for research agendas and empirical results.

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Basic Concepts and Assumptions of Social Exchange Theory

Social exchange theory studies the relations among actors that are created by the benefits

and costs they provide for one other (Blau 1964; Emerson 1972a, 1972b; Homans [1961], 1974). For analytical purposes, it abstracts these few elements of social relations from many others and focuses attention on how they are related to one another.

The simplest form of social exchange involves two actors, A and B, each of whom possesses at least one resource that the other values. Resources are relation-specific: a *resource* for actor A, in A's relation with B, is any possession or behavioral capability of A that is valued by B. The mutual exchange of benefits between A and B is called a *transaction*; an ongoing series of transactions between the same two actors constitutes an *exchange relation*. When connected to one another, dyadic relations form larger exchange *networks* of varying size and complexity (Emerson 1972b). Exchange relations can be quite narrow, occurring within a single resource domain (e.g., economic transactions), or quite broad, encompassing the exchange of many different resources (e.g., family relations).

Like other theories in social psychology that emphasize structural relations among actors, social exchange theory is based on a minimal conception of the actor (see Lawler, Ridgeway, and Markovsky 1993).¹ Actors can be individual persons or corporate actors such as groups, organizations, or states. They can be specific entities (e.g., your neighbor Joe or the United States), or interchangeable occupants of structural positions (e.g., your next-door neighbor or the president of IBM). The theory makes only one assumption about actors: that they behave in ways which tend to increase outcomes they value positively and to decrease outcomes they value negatively. This statement does not imply that actors do so consciously or rationally, or that they necessarily maximize outcomes. Actors may behave rationally, by weighing potential costs and benefits of alternative choices of exchange partners and actions, or their choices may reflect the costs and benefits of past behavioral choices without conscious weighing of alternatives. Nor does the assumption specify *what* actors value. Actors may value

getting rich or providing housing for the homeless; the concept of value is basically content-free. Because the theory does not assume that actors' interaction is affected by what actors value—that is, whether actors value money or approval they will behave in similar ways to obtain it—the theory is broadly applicable to social relations regardless of their content.

Given this minimal assumption about actors' motivations, the theory bases predictions on the structural relations between and among actors, rather than on the characteristics or attributes of a single actor. Similarly, rather than predicting individual actors' behaviors, it predicts relations *between* actors' behaviors, and between the benefits and costs they provide for each other.

The structures of interest to exchange theorists are relations of dependence among actors, created by actors' differential access to others who control resources they value. These structures govern the flow of benefits and costs through interaction. The concept of dependence is used to explain the emergence of social relations, the development of structural inequalities, and pressures toward structural change, such as coalition formation. Relations of dependence bring people together (insofar as people are mutually dependent, they are more likely to form relations and to maintain them), but they also create inequalities in power and status (unequal dependencies give less dependent actors an advantage in the relation). These inequalities in turn provide the impetus for collective action and efforts to change the structures that produce imbalances.

The concept of dependence is the cornerstone supporting all structural analyses of social exchange. In the following sections I examine how the structure of outcomes affects actors' dependence on one another, what different forms of dependence imply for risk, and how risk is modified by the structure and organization of transactions.

THE STRUCTURE OF OUTCOMES

The structure of outcomes specifies the relations between the behaviors and the outcomes (rewards or costs) of two or more actors. In other words, it describes the "outcome matrix" for their interaction. As shown by Kelley and Thibaut (1979), Michaels and Wiggins (1976), and Wilson

¹ As discussed by Lawler et al. (1993), other structural theories in social psychology with minimal actor assumptions include expectation states theory (e.g., Berger and Zelditch 1985) and distributive justice theory (e.g., Jasso 1980).

and Bixenstine (1962), any outcome matrix for a dyad can be decomposed into three analytically distinct components. These components specify, for each actor, the extent to which that actor's outcomes depend 1) solely on his or her own behaviors (*independence*), 2) solely on the other actor's behaviors (*dependence*), or 3) on some combination of behaviors by both self and other (*interdependence*).²

Most real social relations, as well as many of the common matrices analyzed by game theorists, consist of two or more of these three forms of outcome control. Independent relations are relevant for social behavior only when they are combined with dependent or interdependent relations to create the classic "mixed-motive" games. The well-known Prisoner's Dilemma matrix, for example, consists of a combination of dependent and independent relations, in which the dependent payoffs are higher than the independent payoffs and the two are correlated negatively.³

My arguments in this paper concern primarily the analytical distinction between dependence and interdependence. These two kinds of relations underlie and distinguish between two fundamentally different forms of social structure and social interaction: exchange *relation and networks*, in which actors produce mutual benefit through exchange, and corporate *groups*, in which actors produce mutual benefit through cooperation or productive exchange (Emerson 1972b).⁴

² *Independence, dependence, and interdependence* are the terms used by Michaels and Wiggins (1976). Other researchers give these relations different labels; for example, Kelley and Thibaut (1978) call them respectively *reflexive control, fate control and behavior control*; Wilson and Bixenstine (1962) call them *absolute control over own gain, absolute control over other's gain, and conditional control over own and other's gains*. Sahlins (1965) refers to dependence and interdependence as *reciprocity and pooling*.

³ The "joint defection" cell of the Prisoner's Dilemma (PD) matrix, which produces the lowest joint outcomes for both actors, consists of purely independent payoffs—outcomes that an actor can produce for self, regardless of the other's behavior. The "cooperation" cell of the PD matrix, which produces the highest joint outcomes for both actors, consists of purely dependent payoffs—outcomes that the actors provide for each other. The "temptation/sucker" cells, which produce the highest outcomes for one actor and the lowest for the other, provide both dependent and independent payoffs for the fortunate actor, and neither for the unlucky partner.

⁴ They also distinguish between two games studied by

A structure of mutual or reciprocal *dependence* is a defining characteristic of all social relations based on exchange. In mutually dependent relations, each actor values some outcomes that are under the control of the interaction partner (e.g., a superior's advice, a subordinate's deference). Each provides the other with benefit through exchange. As shown in the top half of Figure 1, the reciprocal dependence in relations of exchange can be either *direct* (restricted exchange) or *indirect* (generalized exchange). When reciprocity is direct, the recipient of benefit returns benefit directly to the giver. When reciprocity is indirect, the recipient of benefit returns benefit directly to the giver. When dependence is indirect, the recipient does not return benefit to the giver, but to another actor in the social circle. In the example shown in Figure 1, B is directly dependent on A, but A is only indirectly dependent on B, through C.⁵ Levi-Strauss (1969) called this form of indirect dependence "generalized exchange." Ekeh (1974) labeled it "chain-generalized exchange." As the size of a generalized exchange system increases, the reciprocal dependency becomes increasingly indirect and in many cases quite diffuse, as illustrated by the example of wedding gifts.

As Figure 1 shows, structures of direct exchange can consist of isolated dyads or networks of connected dyadic relations. The primary effect of embedding dyadic relations of direct exchange in larger networks of connected relations is to introduce the possibility of structural variations in dependence, and therefore in power. Although exchange networks vary in size and complexity, the basic unit of exchange is always the dyadic relation. In contrast, the smallest unit in which generalized exchange can occur is a structure consisting of three actors.

Relations of mutual *interdependence*, shown in the bottom half of Figure 1, underlie all forms of cooperation in which two or more

social dilemma researchers: the Prisoner's Dilemma, based on a combination of dependence and independence (see footnote 3), and Assurance, which combines two different sets of interdependent outcomes (see Yamagishi forthcoming).

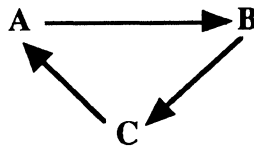
⁵ My use of the terms *direct* and *indirect* is different from that of Yamagishi et al. (1988). They use these terms to indicate whether a resource is transferred from A to B to C without change (direct resource flow), or whether it becomes transformed in the process to a different resource (indirect resource flow).

Dependence: Each actor's outcomes depend solely on the behavior of another actor or actors. Dependence is the defining structure of *exchange relations* and *exchange networks*.

Direct (Restricted) Exchange



Indirect (Generalized) Exchange



Interdependence: Each actor's outcomes depend on the behaviors of all actors in the social unit. Interdependence is the defining structure of *groups*.

Productive Exchange/Group Cooperation



Figure 1. The Structure of Outcomes

individuals act as a collective unit—that is, as a *group* (e.g., Marwell and Schmitt 1975). In a structure based solely on interdependent relations, no individual actor has control over outcomes for either self or other. That control is shared jointly, as in the example of two professors coauthoring a book. If we assume

that the book cannot be written without the contributions of both (the definition of interdependence), the professors can be said to be dependent on the *relationship itself*. By acting collectively, they produce outcomes they could not provide individually. Emerson called this form of group cooperation “pro-

ductive exchange" because it can be conceptualized as an exchange between the individual members of a group and the group itself, acting as a collective actor [$I \leftrightarrow G$].

These two forms of social organization intersect in interesting ways. Groups can serve as collective actors in exchange relations with other collective or individual actors. Similarly, relations of mutual dependence and exchange can be embedded within groups when group members act as individuals rather than as part of a collective unit (Emerson 1972b; Ridgeway and Diekema 1989).

The Implications of Dependence: The Dilemma of Exchange

Regardless of individual actors' propensities, a structure in which actors' outcomes are mutually dependent poses greater risk than a structure in which actors' outcomes are mutually interdependent. In relations of mutual dependence, one actor can produce value for another but receive nothing in return. Because the other has the opportunity to receive something for nothing, there is a temptation *not* to reciprocate. In other words, if we assume that initiating exchange involves some cost—the loss of a resource, the effort of performing a behavior, or simply opportunity costs—the structure of exchange presents a social dilemma for the actors (Hardin 1988). Initiating exchange is risky. The risk of nonreciprocity is greater for generalized exchange than for direct exchange, and it increases with the length of the chain,⁶ but a similar dilemma is involved in both forms of dependence.

When all actors' outcomes are interdependent, less risk is involved because the outcomes are partially contingent on actors' own behaviors. Because of this contingency, no actor can receive benefits without contributing to their production. Thus, although it is possible for an actor to contribute while others fail to do so, no structural incentive for noncooperation exists, and there *is* a structural incentive to cooperate. In other words, relations of dependence tempt actors to defect; relations of interdependence encour-

age actors to cooperate. The built-in contingency between an actor's own behavior and own outcomes fulfills the same function as selective incentives in social dilemmas (see Oliver 1980). Consequently it is easier to establish and maintain mutually beneficial interaction under a structure of interdependence than under a structure of dependence (Molm and Wiggins 1979).

Many groups do not fit this description because their structure is not one of pure interdependence. The departure from interdependence that has been most widely analyzed occurs in groups with more than two members, in which the joint actions of some subset of the group is sufficient to produce benefits for all. If those benefits are nonexcludable (i.e., if they are public goods), some members can "free-ride," obtaining benefits without contributing (see, for example, Sell 1988). Such departures from a structure of pure interdependence are likely to increase with group size as the need for contributions from all group members decreases. When a group has only two members, however, a structure of mutual interdependence necessarily implies that both actors must contribute to produce benefits for either. Because I am concerned with the transformation of direct social exchange relations, the structure of these two-actor units is most relevant for my analysis.

How do actors overcome the risks inherent in mutual dependence, and establish stable exchange relations? In their 1978 monograph, Kelley and Thibaut proposed that the structure of relations between actors' behaviors and outcomes which are determined externally—what they call the "given" matrix—can be transformed into a modified form, called the "effective" matrix, which actually governs actors' behaviors. This transformation process occurs as a result of introducing considerations of the broader social structure into the decision process: for example, the relationship with the partner, the time span of the relationship, and governing rules and norms.

Using Kelley and Thibaut's concept of transformation, I argue that the way in which the *process* of exchange is structured modifies the risk inherent in relations of mutual dependence. These relations can be transformed into structures with elements of interdependence. How they are transformed, and to what extent, depends on the structure

⁶ If, for example, the probability of any actor's reciprocating exchange is .8, the probability of reciprocity is .64 in a three-actor chain, .51 in a four-actor chain, and so forth.

of transactions and on the temporal organization of transactions.

THE STRUCTURE OF TRANSACTIONS

Emerson (1981) distinguished between two forms of transactions in direct exchange relations: negotiated transactions and reciprocal transactions. The differences between these two forms are often considered differences in process, not in structure. Yet the process by which exchange occurs affects the structural relations between the behaviors and the outcomes involved in that process.

In *negotiated transactions*, actors engage in a joint-decision process, such as explicit bargaining, in which they reach an agreement on the terms of the exchange. Both sides of the exchange are agreed upon at the same time, and the benefits for both exchange partners are identified easily as discrete transactions. Most economic exchanges other than fixed-price trades fit this category, as do many social exchanges (e.g., agreements between husband and wife to go to a movie this week and a ballgame the next). The research programs of Cook, Emerson, and their colleagues (Cook and Emerson 1978; Cook et al. 1983; Yamagishi, Gillmore, and Cook 1988), of Willer, Markovsky, and Skvoretz (Markovsky, Willer, and Patton 1988; Skvoretz and Willer 1991; Willer, Markovsky, and Patton 1989), and of Lawler and Bacharach (e.g., Bacharach and Lawler 1981; Lawler 1986) all study negotiated transactions.

In *reciprocal transactions*, actors' contributions to the exchange are performed separately and are not negotiated. Actors initiate exchanges (e.g., with a small act of consideration or an offer of help) without knowing whether, when, or to what degree others will reciprocate. Exchange relations develop over time as beneficial acts prompt reciprocal benefit. Because the same act may complete one exchange and initiate another, discrete transactions are difficult to identify. Instead the relation takes the form of a series of sequentially contingent acts. Reciprocal transactions are very uncharacteristic of economic exchanges, at least in industrial societies, but are typical of many social exchanges. In many interpersonal relationships, norms curtail the extent of explicit bargaining. Even in political and business settings, unilateral initiatives are common

(e.g., offering to support a colleague's proposal), and the expectation of future reciprocity is often left implicit. My own research program studies reciprocal transactions (e.g., Molm 1981, 1988, 1989, 1990); they also characterize much of the research based on extended-matrix games. (Also see Burgess and Nielsen 1974; Michaels and Wiggins 1976.)

Both forms of transactions alter the risk inherent in relations of mutual dependence, but they do so in different ways and to different degrees. In this section I consider how the process of negotiation affects risk in comparison with the absence of negotiation in reciprocal exchanges. Then, in the following section, I analyze the effects of repeated exchanges between the same partners: a defining feature of reciprocal exchanges. Then, in the following section, I analyze the effects of repeated exchanges between the same partners: a defining feature of reciprocal exchanges, but optional in negotiated exchange.

Negotiated and reciprocal transactions create different structural relations between actors' behaviors and between their outcomes (Table 1). In reciprocal transactions, actors' decisions are made individually; in negotiated transactions, they are made jointly. In most experimental settings that study negotiated transactions, the agreements also are strictly binding: they cannot be violated. Game theorists describe these two decision structures as noncooperative games and cooperative games (Heckathorn 1985). In cooperative games, strictly binding agreements are made jointly; in noncooperative games, actors decide on their choices independently, without knowledge of the others' choices.⁷

⁷ Clearly these differences affect information as well as structure. The joint decision making of negotiated exchange reduces uncertainty, which in turn reduces risk. This particular difference in information is a defining feature of the two kinds of transactions. Although other kinds of information (about the network, the value of resources, or the partners' outcomes) also may be associated more commonly with one type of transaction than with the other, there is no necessary relation between the two. Experimental programs that study negotiated and reciprocal exchanges vary considerably, both within and across forms of transactions, in the amount of information that subjects possess about various aspects of the exchange. Analyzing how different sources of information affect risk in exchange is essential for any comprehensive analysis of risk, but is beyond the scope and objectives of this paper.

Table 1. The Structure of Transactions

	Reciprocal Transactions	Negotiated Transactions
Relations between Behaviors	Individual decisions	Joint decision
Relations between Outcomes	Reciprocation of separate outcomes	Division of joint outcome

The individual or joint nature of the decision process also has implications for the relation between actors' outcomes. In reciprocal transactions, actors' behaviors and outcomes are sequentially contingent on one another but are separate. What B receives from A at Time 1 (t_1) affects what B gives to A at t_2 , which affects what A gives to B at t_3 , and so forth, but A's outcomes at t_1 and B's outcomes at t_2 do not affect *each other*. In negotiated transactions, the joint decision process forces each actor to take account of both actors' outcomes simultaneously, even if they have full or correct information only on their own outcomes. In bargaining experiments, this feature sometimes takes the form of having actors negotiate over a division of profit points. Exchange theorists have debated whether this task constitutes exchange (Emerson et al. 1983; Heckathorn 1983; Willer et al. 1989). Strictly speaking, it does not: a division of total profit is a form of allocation, not of exchange. The two are similar in the sense that one can always take the total value of two resources that are exchanged and transform it into a single dimension of value, which is divided. That transformation process, however, changes the framing of the problem which confronts the actors, from a two-way exchange of separate resources to the division of a single resource pool into shares (Eckhoff 1974).⁸ For example, members of a couple who negotiate household chores typically do not conceptualize a task as (say) the exchange of a clean bathroom for a good dinner, but as the division of a total pool of work into shares.

⁸ In Markovsky and Willer's experiments (e.g., Markovsky et al. 1988) subjects negotiate over the division of a known, fixed number of benefit points on each transaction. In Cook and Emerson's experiments (e.g., Cook and Emerson 1978; Cook et al. 1983) subjects also divide a fixed number of benefit points, but they do not know that they are doing so, and the transaction takes the form of an exchange rather than an allocation. The structure of the payoff matrix in the two experimental settings is the same, but the problem is framed differently (Kahneman and Tversky 1984).

As shown by Kahneman and Tversky's (1984) work, people's choices can be affected by how decisions are framed. Framing social exchange as a problem of allocation emphasizes the relation between the actors' outcomes. That relation may be zero-sum (if the joint outcome is fixed in value) or nonzero-sum (if the value of the joint outcome depends on the particular agreement reached); bargaining theorists use this factor to distinguish between distributive and integrative bargaining (Lawler and Ford forthcoming; Pruitt 1981).

In summary, the process of negotiation affects the structure of dependence through its effects on the relations between actors' behaviors and their outcomes. When actors are required to reach an agreement before either actor can receive any benefit, the structure is changed from one of mutual dependence to one with elements of interdependence. That feature of negotiated exchange makes actors dependent on the relation, not merely on the other actor. Furthermore, the joint decision process highlights the relation between the actors' outcomes, and changes the framing of the task from an exchange of separate benefits to the allocation of a joint pool of benefits.

By transforming the structure of dependence, negotiated transactions reduce the risk of nonreciprocity of exchange. The bargaining process itself still entails risk because actors may unknowingly use some tactics that reduce the chances of reaching any agreement, or that result in a less favorable agreement. When actors negotiate strictly binding and enforceable agreements, however, they know what they are receiving for what they are giving. They can accept the terms of the exchange, or not. They do not risk the chance that the exchange will be unilateral.

As Heckathorn (1985) has pointed out, this is not necessarily true in nonexperimental settings, where the distribution of outcomes does not automatically follow an agreement and where, consequently, agreements may not be kept. Heckathorn has proposed, in game-theoretic terms, that two types of games are involved in most actual bargaining transactions: the original cooperative game, in which the decision to reach an agreement is joint, and a noncooperative game, in which the decisions to honor the agreement are individual. This two-stage decision structure

represents a position midway between the structures associated with negotiated transactions with strictly binding agreements, and those associated with reciprocal transactions. Kollock (1992) recently has begun investigating negotiated exchanges in which actors may deceive one another about the value of what they are giving in exchange. Under these conditions, exchange is risky even in negotiated transactions.

The distinction between negotiated and reciprocal transactions applies realistically only to direct exchange relations, whether isolated or embedded in larger networks. As size increases, it becomes more difficult to make and to enforce negotiated agreements. In generalized exchange networks of any size, it is almost impossible to do so. Therefore generalized exchange structures typically are characterized by reciprocal transactions, in which reciprocity is indirect and delayed.

Consequently, generalized exchange relations are far riskier than direct exchange relations with negotiated transactions. They are made riskier not only by the indirect structure of dependence, but also by the impossibility of negotiated transactions. Comparisons of negotiated direct exchange with nonnegotiated indirect exchange often confound these two factors. For example, Sahlins's (1972) concept of balanced reciprocity is often equated with direct exchange. His definition of balanced reciprocity, however—"transactions which stipulate return of commensurate worth or utility within a finite and narrow period" (1972:148)—implies not only direct exchange but also negotiated transactions.

For Blau (1964), the distinction between negotiated and reciprocal transactions was more fundamental than a question of how exchange is carried out. It distinguished social exchange from economic exchange:

Social exchange differs in important ways from strictly economic exchange. The basic and most crucial distinction is that social exchange entails *unspecified* obligations. The prototype of an economic transaction rests on a formal contract that stipulates the exact quantities to be exchanged. . . . Whether the entire transaction is consummated at a given time, . . . or not at all, all the transfers to be made now or in the future are agreed upon at the time of sale. Social exchange, in contrast, involves the principle that one person does another a favor, and while there is a general expectation of some future return, its exact nature is definitely *not* stipulated in advance. . . . Social exchange . . . involves

favours that create diffuse future obligations, not precisely specified ones, and the nature of the return cannot be bargained about but must be left to the discretion of the one who makes it (Blau 1964:93-94).

Although few social exchange researchers now would assert that negotiated transactions lie outside the scope of social exchange, Blau's position alerts us to the dangers of assuming the opposite: that all social exchange transactions are negotiated. Many—perhaps most—are not; thus there remains the problem of how the risk of social exchange is overcome in reciprocal transactions. Blau's solution to the problem is trust: "Since there is no way to assure an appropriate return for a favor, social exchange requires trusting others to discharge their obligations" (1964:94). How is such trust established?

Typically . . . exchange relations evolve in a slow process, starting with minor transactions in which little trust is required because little risk is involved. A worker may help a colleague a few times. If the colleague fails to reciprocate, the worker has lost little and can easily protect himself against further loss by ceasing to furnish assistance. If the colleague does reciprocate . . . he proves himself trustworthy of continued and extended favors. . . . Hence, processes of social exchange, which may originate in pure self-interest, generate trust in social relations through their recurrent and gradually expanding character (Blau 1964:94).

Blau's description of the gradual development of a social exchange relation in which transactions are reciprocal, assumes an additional feature of social exchange that we have not yet discussed: relations between sequential transactions.

THE TEMPORAL ORGANIZATION OF TRANSACTIONS

Whereas the structure of transactions was Blau's (1964) basis for distinguishing between social and economic exchange, Emerson's (1972b) criterion was the structure of relations *between* transactions.⁹ Classical microeconomic theory typically assumed that transactions were independent events: that subsequent transactions, whether between the

⁹ Yet another criterion that has been used is the kind of benefits exchanged—that is, material or monetary versus social or psychological. See Emerson (1981) for a critique of that approach.

same or different actors, were unaffected by prior ones. In contrast, social exchange theory assumes that transactions are serially dependent; it adopts the relatively enduring exchange relation between two specific actors as the smallest unit of analysis.¹⁰ Figure 2 illustrates the distinction between independent and serially dependent transactions.

This assumption is one of the differences between social exchange theory and the elementary theory of network exchange developed by Willer and his associates. The elementary theory does not assume dependence between sequential transactions (Anderson and Willer 1981). Empirical work based on this framework takes the transaction, rather than the series of transactions that constitute the exchange relation, as the unit of analysis. It uses an experimental setting in which subjects rotate through different positions in the network, occupying each position for only a few rounds of negotiation (e.g., Markovsky et al. 1988; Markovsky et al. forthcoming; Skvoretz and Willer 1991).¹¹ The theory assumes rational actors who modify their offers on the basis of the consequences of previous offers, but those previous transactions need not have been with the same actors.

This model is closer to economic exchange; in fact, Willer does not make the same distinction between social and economic exchange as does Emerson. He uses the term *economic exchange* for all exchanges in which an actor incurs some cost in order to obtain greater gain (Willer 1985; Willer et al. 1989), and reserves the term *social exchange* for exchanges in which both sides of the exchange produce benefit for the giver as well as the receiver.¹²

The consequences of serially dependent

transactions are most important for reciprocal transactions. As Figure 2 shows, negotiated transactions can be either independent or serially dependent, but reciprocal transactions assume a continuing relation in which transactions are serially dependent. This feature of reciprocal transactions provides actors with the opportunity to overcome the social dilemma inherent in mutual dependence. It does so in two ways.

First, a continuing exchange relation allows actors to use contingent action to influence their exchange partners' behavior. In isolated transactions such as the one-shot Prisoner's Dilemma game, the rational choice is to defect from the exchange and receive benefits from the other without reciprocating. When the same actors interact with one another repeatedly, however, each can respond contingently to the other's previous behavior. As a result, it may not be in A's interest to shortchange B (whether it is depends on their relative power). Strategies of this form have been investigated by researchers studying reciprocal exchange (e.g., Molm 1990) and noncooperative matrix games (e.g., Axelrod 1984). Strategies may be purposive attempts to influence another's behavior, or nonpurposive responses to the outcomes of interaction with others (Macy 1989).

Like negotiated transactions, influence strategies are a way of transforming a structure of dependence into a structure of interdependence, in which an actor's outcomes depend not only on what another does, but also on what the actor himself or herself does. Thibaut and Kelley (1959) called this process "converting fate control into behavior control" (1959:104). A's action toward B at Time 1 affects B's action toward A at Time 2; thus A's action toward B affects A's own outcomes *indirectly*. This process cannot take place when transactions are independent. Learning still can take place, and the learning may generalize to subsequent transactions with different actors, but behavioral influence, which requires contingent responses to actions over time and *across* transactions, is not possible.

Strategies of influence are also employed in negotiated transactions, but typically they are used to influence the process of a single transaction rather than to affect subsequent transactions. Because negotiated transactions themselves consist of a sequence of serially dependent behaviors—the offers and counter-

¹⁰ This assumption does not rule out the possibility of interchangeable actors in structural positions. It requires, however, that some kind of "institutional memory" relate those actors, so that the transactions made by one occupant of a position affect future transactions made by a new occupant. In most organizations, of course, this is the case.

¹¹ Although the *theory* does not assume dependence between transactions, the fact that subjects in the experimental setting exchange with the same subjects for a few rounds before rotating positions requires statistical control for possible violations of independence (Skvoretz and Willer 1991).

¹² Willer's (1985) definition of social exchange is somewhat similar to interdependence, but not identical. Like interdependence, it eliminates the risk of nonreciprocity, but unlike interdependence, it does not require joint action to enable either party to obtain benefits.

A. Independent Transactions (Economic Exchange)

$$[A_1 \leftrightarrow B_1] \quad [A_2 \leftrightarrow B_2] \quad [A_3 \leftrightarrow B_3]$$

B. Serially Dependent Transactions (Social Exchange)

$$1. \text{ Negotiated: } [A \leftrightarrow B] \Rightarrow [A \leftrightarrow B] \Rightarrow [A \leftrightarrow B]$$

$$2. \text{ Reciprocal: } A \rightarrow B \rightarrow A \rightarrow B \rightarrow A \rightarrow B$$

Note: The subscripts to A and B indicate that independent transactions need not involve the same actors. Solid arrows represent resource flows; open arrows indicate influence only.

Figure 2. The Temporal Organization of Transactions

offers of explicit bargaining—actors use various influence tactics (e.g., threats of punishment, concession tactics, impression management) in an effort to obtain a more favorable agreement for themselves (e.g., Bacharach and Lawler 1981). In addition to these intratransactional influence processes, however, the *outcome* of a transaction acts as a form of positive or negative sanctioning that affects bargaining behavior in future transactions. Actors who get what they want will try similar tactics in the future; those who do not will vary their tactics. In negatively connected exchange networks, in which two or more actors compete for the opportunity to complete a transaction with a single other actor, the ultimate negative sanction may be losing out (what Markovsky et al. 1988 call “exclusion”). Whether these kinds of learning processes depend on continued exchange with the same partner has been addressed recently by Cook, Donnelly, and Yamagishi (1992).

Some social dilemma researchers have suggested that strategies are of limited effectiveness in units larger than the dyad (Dawes 1980). Macy (1989) argues that this is less true when an operant, noncognitive model of the actor is assumed. In generalized exchange networks, the lack of direct reciprocity makes contingent action by the recipient impossible unless a generalized strategy is used: for example, C punishes A’s failure to reward B. In networks of direct exchange, the use of effective strategies

becomes more difficult with increasing numbers of partners, but certainly not impossible. The differential dependencies among actors make strategic action toward some partners more likely than toward others. Actors can concentrate their attention on the partner on whom they are most dependent.

Second, in addition to strategies of influence, the serial dependence of transactions allows for the development of “emergent” aspects of the relation, such as the development of trust and commitment, and norms of fair exchange (Blau 1964; Emerson 1981). The earlier quotation from Blau illustrates this step-by-step development of trust. In negotiated transactions, actors may form commitments to particular partners that are not necessarily based on profit (Cook and Emerson 1978; Lawler and Yoon 1993; Tallman, Gray and Leik 1991). Agreements may be reached less formally, and credit may be allowed. In reciprocal transactions, the timing of reciprocity may become more variable and delays in reciprocity more common without risking the dissolution of the relation. Trust should develop as the exchange partner’s reciprocity becomes predictable. These processes, discussed by Leik and Leik (1977) and Levinger (1979), contradict Ekeh’s (1974) and Levi-Strauss’s (1969) arguments that direct exchange relations always involve a quid pro quo mentality, strict accounting, and an emphasis on immediate reciprocity. Whether they do so depends on the stage of the relation and the history of interaction.

In summary, serially dependent transactions, like interdependent decisions and outcomes, reduce the risk of nonreciprocity by increasing actors' dependence on *the relation*, not only on each other's actions. They provide actors with the opportunity to change the structure, through the use of contingent action, and they create a context in which the long-term benefits of exchange are more apparent. The effects of serially dependent transactions, however, are more limited than the effects of negotiated transactions with binding agreements, particularly for generalized exchange. Because contingent action is not feasible in a structure of generalized exchange, actors must rely on emergent processes such as trust (Yamagishi and Cook 1993).¹³ Blau's example illustrates one way in which trust might be built—through a gradual increase in the value of the resources exchange—but I know of no empirical test of such a process.

CONCLUSIONS AND IMPLICATIONS FOR RESEARCH

Although networks are the most important structural concept in social exchange theory for linking micro with macro levels of analysis, exchange researchers have paid insufficient attention to an even more fundamental structural concept: the outcome structure that defines the relations of dependence among actors. The structure that underlies relations of exchange—mutual dependence—creates a social dilemma for actors that makes social exchange inherently risky and potentially unstable.

This risk is altered, to varying degrees, by other features of exchange: the structure of transactions and the temporal organization of transactions. Both negotiated transactions and serially dependent transactions introduce elements of interdependence into the structure of exchange. As a result, they make actors more dependent on the *relation*, and more likely to consider actions in the broader context of the

social relation and their future interactions with exchange partners. They do not do so to the same extent, however. Negotiated transactions change the outcome structure directly, whereas serially dependent transactions only provide the opportunity for structural change, through contingent action. This opportunity is not always used, or used effectively (e.g., Molm 1990). Because both negotiation and contingent action are difficult when dependence is indirect, actors in generalized exchange relations have fewer options for reducing risk, and often must rely on the development of emergent norms or interpersonal trust. Thus risk increases systematically as we move from negotiated direct exchange, to reciprocal direct exchange, to generalized exchange.

What are the implications of these differences for research? First, they tend to direct researchers to different lines of inquiry. The risk of nonreciprocity in reciprocal exchange (both direct and indirect) raises issues that are less central for negotiated exchange: the assessment of risk, the development of trust, the use and effectiveness of strategies of influence. Not surprisingly, these topics also have concerned social dilemma researchers (see Yamagishi forthcoming). In contrast, in negotiated transactions with strictly binding agreements, the primary focus is on what occurs *within* transactions, not between them: who forms agreements with whom, the nature of the agreement, and the allocation of resources. This is particularly true when negotiated transactions are independent of one another. Trust is less of an issue, and contingent action (except within transactions) is unnecessary.

Second, the form of transactions that researchers study may affect their assumptions about actors' decision processes. As discussed earlier, the motivational assumption of social exchange theory is sufficiently broad to encompass both the "backward-looking" operant actor who learns from the consequences of past behaviors and the "forward-looking" rational actor who calculates potential costs and benefits of future actions. It is likely, however, that assumptions of a rational actor are more compatible with negotiated transactions, which encourage actors to calculate and compare the relative benefits of different options. In reciprocal transactions, in which actors respond sequentially to one another without agreements, the

¹³ In more diffuse networks of generalized exchange—those which lack the specific chain-generalized form (Ekeh 1974) shown in Figure 1—actors can use a different strategy to increase the probability that they will receive rewards: they can attempt to position themselves close to the most probable sources of rewards in the network. This is the strategy commonly used in the "old boy network" or its modern equivalents in the business and professional world.

future is uncertain but the consequences of past actions are known. Under these conditions, an operant actor is a reasonable assumption. Not surprisingly, most research programs on negotiated transactions assume rational actors (e.g., Cook et al. 1983; Markovsky et al. 1988), whereas researchers who study reciprocal transactions are more likely to use a learning model (e.g., Burgess and Nielsen 1974; Molm 1981). Both models are ideal, of course; neither context rules out one model or the other. Yet assumptions based on these two models will not always lead to the same predictions: repetition of past successes does not necessarily maximize future outcomes.¹⁴

Third, it is likely that the variations in risk among these forms of exchange affect the outcomes of exchange. One of the long-standing hypotheses of exchange theory is that risk in exchange promotes greater solidarity and trust. Blau (1964) argued that obligations which are not immediately repaid give strength to exchange relations because they allow the demonstration of trust in social exchange. Similarly, Levi-Strauss (1969) and Ekeh (1974) proposed that generalized exchange relations create solidarity because the actors involved must be prepared to take risks. Of necessity, a credit mentality is required; such a system therefore engenders high levels of trust. Kelley and Thibaut (1978) state the same hypothesis in attributional terms, suggesting that attributions of trust—a dispositional quality—will be made only in situations entailing some risk. The idea that risky structures, which are inherently fragile, will produce exchange relations of greater solidarity and commitment than structures entailing less risk is one of the most intriguing propositions in the exchange literature. To date, however, it has received almost no empirical test. Kollock's (1992) recent experimental work on uncertainty, commitment, and trust is an exception, and offers preliminary support for the hypothesis. As Gillmore (1987) has shown, effects of these structures on solidarity also have implications for coalition formation.

The greater risk in reciprocal transactions

also has implications for the relations between structure and action, in general, and between structural power and use of power, in particular. In reciprocal transactions, the "equilibrium" state of power use—the ratio of exchange at which the more dependent actor receives no more than he or she could receive from the best alternative (Cook and Emerson 1978)—is less likely to be reached. Reaching that equilibrium requires exploration of the possible range of exchange ratios. In reciprocal exchanges, individuals' preference for a sure outcome of smaller value over an uncertain outcome of greater value (Kahneman and Tversky 1984) tends to discourage risky exploration. Individuals will settle for a satisfactory, but probably not optimal, outcome. Explicit bargaining is more likely to reveal better options for the powerful actor because the risk of discovering those options is lower. Thus the relation between the structural potential for power and the use of power should be weaker for reciprocal transactions than for negotiated transactions.

These possibilities are quite speculative, of course, and they require empirical tests. Such tests must *compare* forms of exchange that have tended to be constant within different research programs. Undertaking this kind of research requires a broader conception of social exchange—one that combines the classical view of social exchange as nonnegotiated, gradually evolving relations, in which terms are never specified, with more contemporary views of exchange as bargaining relations. This analysis suggests that it is time for exchange theorists to begin constructing theories that take the full scope of social exchange relations into account, and to investigate the implications, for both structure and behavior, of these different forms of social exchange.

REFERENCES

- Anderson, Bo and David Willer. 1981. "Introduction." Pp. 1–21 in *Networks, Exchange, and Coercion: The Elementary Theory and Its Applications*, edited by David Willer and Bo Anderson. New York: Elsevier.
- Axelrod, Robert. 1984. *The Evolution of Cooperation*. New York: Basic Books.
- Bacharach, Samuel B. and Edward J. Lawler. 1981. *Bargaining: Power, Tactics, and Outcomes*. San Francisco: Jossey-Bass.
- Berger, Joseph and Morris Zelditch Jr., eds. 1985. *Status, Rewards, and Influence*. San Francisco: Jossey-Bass.
- Blau, Peter. 1964. *Exchange and Power in Social Life*. New York: Wiley.

¹⁴ Emerson (1987) proposed that value domains might distinguish between these two models of the actor, suggesting that choices *between* domains are the products of long-term conditioning, whereas choices *within* domains are more likely to be the product of conscious, calculated decisions.

- Burgess, Robert L. and Joyce McCarl Nielsen. 1974. "An Experimental Analysis of Some Structural Determinants of Equitable and Inequitable Exchange Relations." *American Sociological Review* 39:427-43.
- Cook, Karen S., Shawn Donnelly, and Toshio Yamagishi. 1992. "The Effect of Latent Paths on the Distribution of Power in Exchange Network Structures." Paper presented at the annual meetings of the American Sociological Association, Pittsburgh.
- Cook, Karen S. and Richard M. Emerson. 1978. "Power, Equity and Commitment in Exchange Networks." *American Sociological Review* 43:721-39.
- Cook, Karen S., Richard M. Emerson, Mary R. Gillmore, and Toshio Yamagishi. 1983. "The Distribution of Power in Exchange Networks: Theory and Experimental Results." *American Journal of Sociology* 89:275-305.
- Dawes, Robyn M. 1980. "Social Dilemmas." *Annual Review of Psychology* 31:169-93.
- Eckhoff, Torstein. 1974. *Justice: Its Determinants in Social Interaction*. Rotterdam: Rotterdam University Press.
- Ekeh, Peter P. 1974. *Social Exchange Theory: The Two Traditions*. Cambridge, MA: Harvard University Press.
- Emerson, Richard M. 1972a. "Exchange Theory, Part I: A Psychological Basis for Social Exchange." Pp. 38-57 in *Sociological Theories in Progress*. Vol. 2, edited by Joseph Berger, Morris Zelditch Jr., and Bo Anderson. Boston: Houghton Mifflin.
- . 1972b. "Exchange Theory, Part II: Exchange Relations and Networks." Pp. 58-87 in *Sociological Theories in Progress*. Vol. 2, edited by Joseph Berger, Morris Zelditch Jr., and Bo Anderson. Boston: Houghton Mifflin.
- . 1981. "Social Exchange Theory." Pp. 30-65 in *Social Psychology: Sociological Perspectives*, edited by Morris Rosenberg and Ralph H. Turner. New York: Basic Books.
- . 1987. "Toward a Theory of Value in Social Exchange." Pp. 11-46 in *Social Exchange Theory*, edited by Karen S. Cook. Newbury Park, CA: Sage.
- Emerson, Richard M., Karen S. Cook, Mary R. Gillmore, and Toshio Yamagishi. 1983. "Valid Predictions from Invalid Comparisons: Response to Heckathorn." *Social Forces* 61:1232-47.
- Gillmore, Mary Rogers. 1987. "Implications of Generalized versus Restricted Exchange." Pp. 170-89 in *Social Exchange Theory*, edited by Karen S. Cook. Newbury Park, CA: Sage.
- Hardin, Russell. 1988. *Morality within the Limits of Reason*. Chicago: University of Chicago Press.
- Heckathorn, Douglas D. 1983. "Valid and Invalid Interpersonal Comparisons: Response to Emerson, Cook, Gillmore, and Yamagishi." *Social Forces* 61:1248-59.
- . 1985. "Power and Trust in Social Exchange." Pp. 143-67 in *Advances in Group Processes*. Vol. 2, edited by Edward J. Lawler. Greenwich, CT: JAI.
- Homans, George C. (1961) 1974. *Social Behavior: Its Elementary Forms*. 2nd ed. New York: Harcourt Brace Jovanovich.
- Jasso, Guillermina. 1980. "A New Theory of Distributive Justice." *American Sociological Review* 45:3-32.
- Kahneman, Daniel and Amos Tversky. 1984. "Choices, Values, and Frames." *American Psychologist* 39:341-50.
- Kelley, Harold H. and John W. Thibaut. 1979. *Interpersonal Relations: A Theory of Interdependence*. New York: Wiley.
- Kollock, Peter. 1992. "The Emergence of Exchange Structures: An Experimental Study of Uncertainty, Commitment, and Trust." Presented at the annual meetings of the American Sociological Association, Pittsburgh.
- Lawler, Edward J. 1986. "Bilateral Deterrence and conflict Spiral: A Theoretical Analysis." Pp. 107-30 in *Advances in Group Processes*. Vol. 3, edited by Edward J. Lawler. Greenwich, CT: JAI.
- Lawler, Edward J. and Rebecca Ford. Forthcoming. "Bargaining and Influence in Conflict." In *Sociological Perspectives on Social Psychology*, edited by Karen S. Cook, Gary Alan Fine, and James S. House. Boston: Allyn and Bacon.
- Lawler, Edward J., Cecilia Ridgeway, and Barry Markovsky. 1993. "Structural Social Psychology and Micro-Macro Linkages." *Sociological Theory* 11:268-90.
- Lawler, Edward J. and Jeongkoo Yoon. 1993. "Power and the Emergence of Commitment Behavior in Negotiated Exchange." *American Sociological Review*, 58:465-81.
- Leik, Robert K. and Sheila K. Leik. 1977. "Transition to Interpersonal Commitment." Pp. 299-322 in *Behavioral Theory in Sociology*, edited by Robert L. Hamblin and John H. Kunkel. New Brunswick, NJ: Transaction Books.
- Levinger, Gerald. 1979. "A Social Exchange View on the Dissolution of Pair Relationships." Pp. 169-93 in *Social Exchange in Developing Relationships*, edited by Robert L. Burgess and Ted L. Huston. New York: Academic Press.
- Levi-Strauss, Claude. 1969. *The Elementary Structures of Kinship*. Revised ed. Boston: Beacon.
- Macy, Michael W. 1989. "Walking out of Social Traps: A Stochastic Learning Model for the Prisoner's Dilemma." *Rationality and Society* 1:197-219.
- Markovsky, Barry, John Skvoretz, David Willer, Michael Lovaglia, and Jeffrey Erger. 1993. "The Seeds of Weak Power: An Extension of Network Exchange Theory." *American Sociological Review* 58:197-209.
- Markovsky, Barry, David Willer, and Travis Patton. 1988. "Power Relations in Exchange Networks." *American Sociological Review* 53:220-36.
- Marwell, Gerald and David R. Schmitt. 1975. *Cooperation: An Experimental Analysis*. New York: Academic Press.
- Michaels, James W. and James A. Wiggins. 1976. "Effects of Mutual Dependency and Dependency Asymmetry on Social Exchange." *Sociometry* 39:368-76.
- Molm, Linda D. 1981. "The Conversion of Power Imbalance to Power Use." *Social Psychology Quarterly* 44:151-63.
- . 1988. "The Structure and Use of Power: A Comparison of Reward and Punishment Power." *Social Psychology Quarterly* 51:108-22.
- . 1989. "Punishment Power: A Balancing Process in Power-Dependence Relations." *American Journal of Sociology* 94:1392-1418.
- . 1990. "Structure, Action, and Outcomes: The Dynamics of Power in Social Exchange." *American Sociological Review* 55:427-47.
- Molm, Linda D. and Karen S. Cook. Forthcoming. "Social Exchange and Exchange Networks." In

- Sociological Perspectives on Social Psychology*, edited by Karen S. Cook, Gary Alan Fine, and James S. House. Boston: Allyn and Bacon.
- Molm, Linda D. and James A. Wiggins. 1979. "A Behavioral Analysis of the Dynamics of Social Exchange in the Dyad." *Social Forces* 57:1157-79.
- Oliver, Pamela. 1980. "Rewards and Punishments as Selective Incentives for Collective Action: Theoretical Investigations." *American Journal of Sociology* 85: 1356-75.
- Pruitt, Dean G. 1981. *Negotiation Behavior*. New York: Academic Press.
- Ridgeway, Cecilia and David Diekema. 1989. "Dominance and Collective Hierarchy Formation in Male and Female Task Groups." *American Sociological Review* 54:79-93.
- Sahlins, Marshall D. 1965. "On the Sociology of Primitive Exchange." Pp. 139-236 in *The Relevance of Models for Social Anthropology*, edited by Michael Banton. London: Tavistock.
- . 1972. *Stone Age Economics*. Chicago: Aldine-Atherton.
- Sell, Jane. 1988. "Types of Public Goods and Free-Riding." Pp. 119-40 in *Advances in Group Processes*. Vol. 5, edited by Edward J. Lawler and Barry Markovsky. Greenwich, CT: JAI.
- Skvoretz, John and David Willer. 1991. "Power in Exchange Networks: Setting and Structural Variations." *Social Psychology Quarterly* 54:224-38.
- Tallman, Irving, Louis Gray, and Robert K. Leik. 1991. "Decision, Dependency, and Commitment: An Exchange Based Theory of Group Formation." Pp. 227-57 in *Advances in Group Processes*. Vol. 8, edited by Edward J. Lawler, Barry Markovsky, Cecilia Ridgeway, and Henry A. Walker. Greenwich, CT: JAI.
- Thibaut, John W. and Harold H. Kelley. 1959. *The Social Psychology of Groups*. New York: Wiley.
- Willer, David. 1985. "Property and Social Exchange." Pp. 123-42 in *Advances in Group Processes*. Vol. 2, edited by Edward J. Lawler. Greenwich, CT: JAI.
- Willer, David, Barry Markovsky, and Travis Patton. 1989. "Power Structures: Derivations and Applications of Elementary Theory." Pp. 313-53 in *Sociological Theories in Progress: New Formulations*, edited by Joseph Berger, Morris Zelditch Jr., and Bo Anderson. Newbury Park, CA: Sage.
- Wilson, Kellogg V. and V. Edwin Bixenstine. 1962. "Forms of Social Control in Two-Person, Two-Choice Games." *Behavioral Science* 7:92-102.
- Yamagishi, Toshio. Forthcoming. "Social Dilemmas." In *Sociological Perspectives on Social Psychology*, edited by Karen S. Cook, Gary Alan Fine, and James S. House. Boston: Allyn and Bacon.
- Yamagishi, Toshio and Karen S. Cook. 1993. "Generalized Exchange and Social Dilemmas." *Social Psychology Quarterly* 56:235-48.
- Yamagishi, Toshio, Mary R. Gillmore, and Karen S. Cook. 1988. "Network Connections and the Distribution of Power in Exchange Networks." *American Journal of Sociology* 93:833-51.

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